Amendments to the Claims

1. (Currently Amended) A method for correcting position error in a navigation system, the method comprising the steps of:

receiving a current position measurement of a moving object from GPS/DR (Dead Reckoning) – based information;

correcting the current location measurement using at least one displacement-corrected value;

performing map matching using the corrected current position measurement;

calculating variation of correction angle by extracting a current correction angle out of the map matching result;

converting and correcting ~~a previous~~ the displacement-corrected value [[to]] in view of the current correction angle; and

compensating the displacement-corrected value by applying a predetermined constant to the converted displacement-corrected value, and storing the compensated displacement-corrected value.

2. (Original) The method according to claim 1, wherein the variation of correction angle is a difference between a current correction angle being calculated and a previously map-matched correction angle, the current correction angle being calculated based on the map-matched position of the moving object and a link angle.

3. (Original) The method according to claim 1, wherein the current correction angle is calculated from a formula, atan2 {(MMx – GPSx), (Mmy – GPSy)}, wherein GPSx and GPSy denote X-axis and Y-axis measurements of the current position of the moving object; and MMx and Mmy are map-matched X-axis and Y-axis position measurements obtained by matching GPSx and GPSy with the map.

4. (Original) The method according to claim 1, wherein the displacement-corrected values are obtained in X-axis and Y-axis, respectively.

5. (Original) The method according to claim 1, wherein the displacement-corrected values are obtained by Equations below:

x-displacement corrected value = (MMx – GPx) + d * sin (link angle + 90°)

y-displacement corrected value = (Mmy – GPSy) +d * cos (link angle + 90°)

wherein, GPSx and GPSy are current location measurements of the moving object in X-axis and Y-axis; MMx and Mmy are map-matched X-axis and Y-axis position measurements obtained by matching GPSx and GPSy with the map; and d is an absolute correction distance, which is a straight distance between the current location measurement and themap-matched link position.

6. (Original) The method according to claim 1, wherein a compensation coefficient of the displacement-corrected value indicates a directional compensation value along heading of the moving object, being +1 or –1.

7. (Currently Amended) The method according to claim 1, wherein a sign of a compensation coefficient of the displacement-corrected value changes if a variation angle between the current correction angle and the previous correction angle is less than a predetermined level, and if GPS and DR values change[[s]] from the left side to the right side on a link.

8. (Currently Amended) The method according to claim 1, wherein a sign of a compensation coefficient of the displacement-corrected value changes if a variation angle between al ink angle and the current correction angle is in a predetermined range, and the corrected GPS value is located at the right side of a link.

9. (Currently Amended) The method according to claim 1, wherein compensated displacement-corrected values to which [[the]] a compensation coefficient is respectively added are represented by Equations below:

x-displacement corrected value = (MMx – GPSx) + K * d * sin (link angle = 90°)

y-displacement corrected value = (Mmy – GPSy) + K * d * cos (link angle = 90°).

10. (Original) The method according to claim 5, wherein the absolute correction distance (d) is a straight distance between a GPS/DR – based location measurement and a map-matched location measurement.

11. (Currently Amended) The method according to claim 5, wherein the absolute correction distance (d) is obtained from Equation of $d = \sqrt{(x1, x2)^2 + (y1, y2)^2}$, wherein x1 denotes a previously map matched x-displacement corrected value; y1 denotes a previously map matched y-displacement corrected value; x2 denotes a converted x-displacement corrected value of previous map matching using a current correction angle; and y2 denotes a converted y-displacement corrected value of previous map matching using a current correction angle.

12. (Original) The method according to claim 11, wherein the converted x-displacement corrected value (x2) of previous map matching using the current correction angle is obtained by x2 = d * sin ($\theta 2$), and the converted y-displacement corrected value (y2) of previous map matching using the current correction angle is obtained by y2 = d * cos ($\theta 2$), in which $\theta 2$ indicates an angle between a new GPS/DR position measurement and a map-matched value plotted on a Cartesian coordinate system using the direction of true north as a reference line.

13. (Original) A method for correcting position error in a navigation system, the method comprising the steps of:

receiving a current position measurement of a moving object by making use of a GPS/DR (Dead Reckoning) method;

correcting the current location measurement using a previous displacement-corrected value;

performing map matching using the corrected current position measurement; and

calculating out of the map matching result a variation of correction angle, and a compensated displacement-corrected value along heading by extracting a current correction angle out of the map matching result.

14. (Currently Amended) The method according to claim 13, further comprising the steps of:

after map matching is performed, calculating a variation angle by extracting correction angle out of the map matching result;

converting and correcting [[a]] the previous displacement-corrected value [[to]] in view of the current correction angle; and

calculating a displaced-corrected value by compensating the displacement-corrected value by applying to the converted displacement-corrected value a predetermined constant opposite to a correction direction, and storing the compensated displacement-corrected value.

15. (Original) A method for correcting position error in a navigation system, the method comprising the steps of:

receiving a current position measurement of a vehicle obtained from a GPS signal and sensors installed in the vehicle;

correcting the current position measurement of the vehicle to a previously map-matched x- and y- displacement corrected values, and performing map matching on the corrected values;

calculating a current correction angle by extracting a map-matched position of the vehicle and a link angle;

calculating variation of correction angle between the current correction angle and a previously map-matched correction angle, and deciding whether the variation of correction angle is less than a predetermined angle;

if the variation of correction angle is not less than the predetermined angle, initializing x- and y- displacement corrected value to '0'; and

storing x- and y- displacement corrected values being calculated.

16. (Original) A method for correcting position error in a navigation system, the method comprising the steps of:

receiving a GPS position measurement;

extracting candidate links within a predetermined search range around the GPS position measurement;

among a plurality of interpolation points on the candidate links, selecting a spot between interpolation points with highest possibilities; and

among candidate links including the selected spot between interpolation points, selecting a link with a highest possibility of having a moving object, and performing map matching.